

# DENTAL AMALGAM & THE MERCURY POISONING CONTROVERSY

## **PART 2**

**DO YOU HAVE MERCURY  
AMALGAM FILLINGS IN YOUR  
TEETH?**

**DO YOU RECOGNISE THE  
SYMPTOMS LISTED IN THIS  
ARTICLE?**

**NEW RESEARCH NOW  
QUESTIONS THE SAFETY AND  
EFFECTIVENESS OF MERCURY  
AMALGAM AS FILLINGS FOR  
DENTAL CAVITIES.**

**READ THIS IF YOU DARE!**

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**T**here is yet another aspect of mercury amalgam dental treatment to be considered. A number of well-controlled studies have established that during the filling process with amalgam, considerable quantities of mercury vapour and mercury amalgam particulates are expelled in the oral cavity and breathing zone. Hand condensation of the fillings resulted in mercury levels up to 320 micrograms/m<sup>3</sup> with levels up to 770 micrograms/m<sup>3</sup> measured with mechanical condensation. Dry cutting and polishing procedures resulted in very high levels, *often* exceeding 1000 micrograms/m<sup>3</sup>.<sup>41</sup>

During these processes fine particles of amalgam may become accidentally embedded in the soft tissues of the mouth. Investigations have shown that these particles of amalgam undergo progressive degradation within phagocytic cells. During this process mercury is released from the cells into the tissues. This mercury has been found to pass from the tissue fluid into the blood and accumulate in the kidneys.<sup>42</sup>

## **SYMPTOMS OF AMALGAM SYNDROME MERCURY POISONING**

The symptoms associated with mercury poisoning resulting from amalgam corrosion are variable, though certain symptoms are more pervasive than others. One of the most common and consistent complaints is severe headache, often migraine - depending upon the number of fillings, their age, and the degree of corrosion. Amalgam headaches tend to be induced by dramatic changes of climate, particularly the onset of low-pressure periods. Intense anxiety and irregular heart-beat occur at irregular intervals, often independently of any specific external stress factor. Consequent loss of sleep, frequent nightmares and even hallucinations are not uncommon. Persistent bouts of dizziness, leading to vertigo, coupled with mental confusion, disturbances of vision and hearing are also common symptoms. Fatigue is another pervasive symptom, and many patients report diminished work capacities, both physical and mental. Some individuals have observed a sour metallic taste in the mouth, accompanied by increased salivation. Other symptoms can include skin rashes, even eczema, bleeding gums at toothbrushing, facial neuralgia or paralysis,

tremor, and occasionally, severe amnesia to name only a few.

Among the most frequently quoted research studies on mercury poisoning from dental amalgam, is the work of Frykholm of Sweden who substituted radioactive mercury in place of the standard mercury in amalgam, with the aim of testing the patient's urine for radioactive traces of the metal. Frykholm's test procedure established that the levels of radioactive mercury in the patient's urine was negligible and presumably, that the use of mercury in dental amalgam was thus safe.<sup>43</sup>

However, more recent studies have shown that the average concentration of mercury in the blood of persons with amalgam restorations were higher than those of controls with a significant correlation between mercury levels and the areas of exposed amalgam in the oral cavity.<sup>44</sup>

Urinary studies add further evidence, with S. Langworth and co-workers reporting:

*"The significant relationship between the urinary excretion of mercury and the number of amalgam surfaces supports previous findings ... and indicates that some of the mercury released from dental amalgam is subsequently absorbed."<sup>45</sup>*

Further evidence has come from autopsy studies. M. Nylander who reported in 1986 of finding particularly high levels of mercury in pituitary glands obtained from dentists<sup>46</sup> has subsequently found a correlation between mercury levels in the brain and kidney cortex, and the number of amalgam fillings. He and co-workers report:

*"Results from 34 individuals showed a statistically significant regression between the number of tooth surfaces containing amalgam and concentration of mercury in the occipital lobe cortex (mean 10.9 range 2.4 - 28.7 ng Hg/g wet weight)*

*The kidney cortex from 7 amalgam carriers (mean 43.3, range 48-810 ng Hg/g wet weight) showed on average a significantly higher mercury level than those of 5 amalgam-free individuals (mean 49, range 21-105 ng Hg/g wet weight).*

*It is concluded that the cause of the association between amalgam load and accumulation of mercury in tissues is the release of mercury vapour from amalgam fillings."<sup>47</sup>*

Perhaps the most powerful evidence indicting mercury poisoning from amalgams is the reported abatement of symptoms after the removal of the fillings.<sup>48</sup> Langan and others cite the following report in their review.

*"A 17-year old girl, withdrawn, totally lacking in energy, even suicidal, sought treatment. When she became ill, she began to hyperventilate, and "started withdrawing from life", and eventually dropped out of school. She was sent to psychiatrists, internists, and cardiologists without results, and became progressively sicker. A detailed case history recorded by a dentist*

*disclosed that her symptoms had begun 6 months earlier, after the placing of several amalgam restorations. A mercury evaluation and biochemical tests were done. The amalgam restorations were removed and within days all symptoms cleared. The patient has been reported to have returned to school and is now leading a normal, productive life."<sup>49</sup>*

In another case the allergy was manifested as "burning mouth". The symptoms which included a metallic taste had persisted for 8 months following an amalgam placement. When the amalgam was replaced the symptoms resolved in two weeks.<sup>50</sup>

The Committee of The British Dental Society for Clinical Nutrition, after reviewing the literature concluded:

*"... a small but unknown percentage of the population are hypersensitive to low level chronic exposure to mercury released from amalgam fillings - research estimates vary between 1% and 3% of the population with amalgam fillings - and possibly to the electric current generated by some fillings. With patients who suffer from a non-attributable medical condition it would seem prudent to consider mercury hypersensitivity as part of the differential diagnosis."<sup>51</sup>*

The persistence in the belief that these low levels of mercury are harmless has led the medical profession to refer to these amalgam reactions as resulting from mercury "hypersensitivity" and

quite distinct from mercury toxicity.. This view is epitomised by the statements of Langan and co-authors in December 1987.

*"To date, no studies or case reports have appeared in referred scientific journals to support the assertion that dental amalgams are the cause of recognised symptoms of mercury toxicity.*

*In contrast, mercury allergy manifested as an allergic reaction to amalgam restorations has been documented."<sup>52</sup>*

This view ignores the warnings of Professor Stock who after decades of suffering from what had been diagnosed as arthritis came to realise that he was in actual fact suffering from mercury poisoning.<sup>53</sup>

The basis of this reluctance to concede mercury toxicity seems to be based on the observation as reviewers Eley and Cox put it:

*"... that the various reported symptoms do not fit any one pattern of mercury toxicity."<sup>54</sup>*

This same mentality was responsible for the delay in pinpointing the cause of the Minamata tragedy. As Itri and Itri point out, although over 2000ppm mercury was found in sediments in the bay:

**"...during the filling process with amalgam, considerable quantities of mercury vapour and mercury amalgam particulates are expelled in the oral cavity and breathing zone."**

"... this element was not initially given a high priority, because the patients did not display the familiar symptoms of inorganic mercury poisoning such as loose teeth, sore gums, and tremors."

The recent discovery that amalgam mercury can be converted to methylmercury by common oral streptococci bacteria<sup>55</sup> and preliminary studies which show that dental amalgam can adversely affect the quantity of T-lymphocytes<sup>56</sup> make the reassurances of the dental profession even less convincing.

In the light of these findings it is to be admitted that the weight of argument favours the conclusion that mercury poisoning from dental amalgam may constitute an inconspicuous but serious health hazard.

## THE MERCURY THREAT TO DENTAL STAFF

In the foregoing discussion we have considered the mercury problem from the vantage of the patient with amalgam fillings. There is in addition the grave health threat posed to dentists and their support staff who work directly with the material. Even Huggins' modest estimate of 12,000 U.S. dentists making use annually of one hundred and fifty tons of mercury in the name of dental therapy provides cause for alarm.<sup>57</sup> Many dentists fill teeth at an average of four amalgams per hour. Given conditions of poor ventilation (eg closed windows, small rooms, etc) and particularly air conditioning which simply recirculates mercury vapour, the potential for mercury poisoning by exposure of dental staff and their patients from such sources as these cannot be ignored.<sup>58</sup> In one study undertaken by the University of Texas Dental Branch at Houston a longitudinal study revealed that as dental students proceed through their course, they become progressively hypersensitive to mercury. At the onset of their course, first year students exhibited hypersensitivity levels to mercury as low as 2.0%, but by their senior year, hypersensitivity levels had risen to 10.8%. These levels are all the more extraordinary when it is appreciated that the degree of student exposure to mercury by way of filling teeth was not all that great. Second year students averaged only two restorations each, for an average total of twelve exposures. As third year students with an average of 27 total exposures, hypersensitivity levels had risen from the initial figure of 2% to a staggering 10.3%.<sup>59</sup>

There is little doubt that the impact of mercury poisoning upon practising dentists and their staff, as well as their patients, is no trivial matter, and it is clear that sufficient research has now accumulated to serve as a salutary reminder to health authorities that the potential health hazard arising out of the use of dental amalgam should no longer be trivialized.

## IS HYPERSENSITIVITY NATURE'S WARNING?

The mercury amalgam picture illustrates the failure of medicine to look for and recognise what appears to be a blue-print in Nature for health. There is ample evidence as discussed earlier, to suggest that Nature provides for a minimum exposure to mercury compounds. The hypersensitivity reactions themselves seem to be in effect warning signs that our bodies' natural mechanisms to cope with mercury entering the human system, are being taxed beyond their capacity. A recent review of 41 published clinical cases of allergy to dental amalgam showed 30 of the cases involved females.<sup>60</sup> This apparent increased sensitivity of females is itself revealing when one considers that a fetus is particularly vulnerable to any mercury exposure by the mother.<sup>61</sup> It seems that Nature has therefore allowed potential mothers to be much more sensitive to increases in their mercury uptake as a warning sign in order to prevent over-exposure of the fetus.

The continued use of mercury amalgams to fill cavities combined with strict instructions for meticulous dental hygiene and fluoride treatment place unnatural burdens on both our biochemistry and daily routines. Nature has not evolved toothbrush like protuberants on the limbs of apple trees or the stalks of sugar cane but she has provided fibre and a protective mineral and biological balance.

While we know that refined carbohydrate foods are the most carcinogenic of all foods, A.K. Adatia points out that in 1937, it was found that sugar cane juice and whole wheat, in contrast to refined sugar and white flour, contained factors which reduced the solubility of tooth enamel when incubated with saliva. Factors which reduce the solubility of

tooth enamel are also present in, for example, wheat bran, wheat germ, and in the hulls of oats and peanuts. These factors are water soluble and seem to be extracted during mastication.<sup>62</sup> Furthermore, it seems that mastication itself plays a role in incorporating these protective factors into the tooth enamel during the compression processes.<sup>63</sup>

On reflection, it can be seen that Nature's mechanism to protect teeth, in the presence of man inserted mercury amalgams turns into a process for releasing hazardous mercury vapour. Not only that, but the refining of foods as well as removing factors which protect tooth enamel, also removes zinc<sup>64</sup> a factor involved in stimulating the endogenous production of metallothioneine, the protein used by the body to detoxify heavy metals such as mercury.<sup>65</sup>

After reviewing dental caries and periodontal disease in the context of refined carbohydrate foods and disease, Adatia concluded that meticulous oral hygiene and cariostatic food additives such as fluorides were of limited benefit.<sup>66</sup> Instead he suggests that:

*"Inclusion in the diet of unrefined foods of firm fibrous consistency would encourage vigorous mastication which would aid digestion, induce secretion of*

**"Fatigue is another pervasive symptom, and many patients report diminished work capacities, both physical and mental."**

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*saliva of high buffering capacity, promote periodontal health and raise resistance against dental caries. It would seem not unreasonable to suggest that such a scheme of preventive dental medicine based on a natural mechanism and man's scientific dental knowledge could bring the conquest of dental caries and periodontal disease within everyone's reach. It might win general acceptance if it were realised that the dietary factors involved in the pathogenesis of dental caries and periodontal disease are also implicated in the aetiology of many fatal disorders.<sup>167</sup>*

Clearly, Adatia's statement together with the accumulating evidence of mercury amalgam toxicity urge upon us the need to re-evaluate preventative and restorative dental care in the light of Nature's blueprint for health.



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